UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2003/00644

July 16, 2003

Mr. Richard Yarde
Department of Energy
Bonneville Power Administration
P.O. Box 3621
Portland, OR 97208-3621

Re: Endangered Species Act Formal Section 7 Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Central Lateral Canal Upgrade Project, Neal Creek, Hood River Basin, Hood River County, Oregon

Dear Mr. Yarde:

Enclosed is a biological opinion (Opinion) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act that addresses the proposed Central Lateral Canal Upgrade Project. NOAA Fisheries concludes in this Opinion that the proposed action is not likely to jeopardize Lower Columbia River (LCR) steelhead (*Oncorhynchus mykiss*) or LCR chinook salmon (*O. tshawytscha*). This Opinion includes reasonable and prudent measures with terms and conditions that are necessary and appropriate to minimize the potential for incidental take associated with this project.

This document also serves as consultation on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR Part 600. The Hood River and tributaries has been designated as EFH for chinook salmon and coho salmon (*O. kisutch*).

If you have any questions regarding this consultation please contact Ron Lindland of my staff in the Oregon Habitat Branch, at 503.231.2315.

Sincerely,

for D. Robert Lohn
Regional Administrator

cc: Steve Pribyl, ODFW

Endangered Species Act - Section 7 Consultation
Biological Opinion

&

Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

Central Lateral Canal Upgrade Project,
Neal Creek,
Hood River Basin, Hood River County, Oregon

Agency:	Bonneville Power Administration
Consultation Conducted By:	NOAA's National Marine Fisheries Service, Northwest Region
Date Issued:	July 16, 2003
Issued by:	D. Robert Lohn Regional Administrator
Refer to:	**2003/00644**

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1. INTRODUCTION

1.1 Consultation History

NOAA's National Marine Fisheries Service (NOAA Fisheries) received a letter and an attached biological assessment (BA) on May 23, 2003, from the Bonneville Power Administration (BPA) requesting formal Endangered Species Act (ESA) and Magnuson-Stevens Fishery Conservation and Management Act (MSA) consultation on the effects of the proposed Central Lateral Canal Upgrade Project on Lower Columbia River (LCR) steelhead (*Oncorhyncus mykiss*) and LCR chinook salmon (*O. tshawytscha*). The proposed project is in the Neal Creek watershed in the Hood River basin. Neal Creek enters Hood River at River Mile (RM) 4.7, approximately 0.7 mile upstream from Powerdale Dam. The BPA determined in the BA that the proposed action is "likely to adversely affect" (LAA) LCR steelhead and LCR chinook salmon. LCR steelhead are present in Neal Creek, both at the project site and downstream. The historic run of wild LCR chinook salmon in Hood River is considered extinct. However, strays from other LCR chinook salmon populations may enter Hood River from the Columbia River. Therefore, LCR chinook salmon will also be addressed in this biological opinion (Opinion).

NOAA Fisheries listed LCR steelhead as threatened under the ESA on March 19, 1998(63 FR 13347). NOAA Fisheries listed LCR chinook salmon as threatened on March 24, 1999 (64 FR 14308). NOAA Fisheries issued protective regulations for LCR steelhead and LCR chinook salmon under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). The objective of this Opinion is to determine whether implementing the activities included in the Central Lateral Canal Upgrade Project are likely to jeopardize the continued existence of LCR steelhead or LCR chinook salmon.

The objective of the EFH consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

Currently, the Main Canal operated by the East Fork Irrigation District (EFID) is allowed by water right to divert up to 127 cubic feet per second (cfs) of water from the East Fork of Hood River. The open Main Canal conveys the water for approximately 4.5 miles to the Caldwell Flow Structure. Along the way, approximately 15 cfs is diverted from the Main Canal to individual water users. At the Caldwell Flow Structure, the Main Canal is divided into three lateral canals (Highline Lateral, Central Lateral, and Eastside Lateral). The Eastside Lateral currently transfers up to 42 cfs of glacial, silt-laden East Fork Hood River water into the West Fork of Neal Creek. After flowing for approximately 2.5 miles in the West Fork of Neal Creek and Neal Creek, the water is diverted from Neal Creek into the Neal Creek Lateral Canal. The Central Lateral Canal currently conveys up to 47 cfs to the central part of the EFID, while the Highline Lateral conveys up to 24 cfs to Dukes Valley.

1.2 Proposed Action

The proposed project would eliminate the transfer of turbid, glacial, silt-laden water from the East Fork of Hood River via the Eastside Lateral into the West Fork of Neal Creek and the Neal Creek drainage by combining the flows from the Central Lateral (47cfs) and Eastside Lateral (42 cfs) into one buried pipeline which would cross Neal Creek near RM 5.5 (T2N, R10E, S36, NE1/4 of SE1.4). Since the Neal Creek Lateral, which currently diverts water from Neal Creek, would no longer be needed, the existing concrete water diversion structure at approximately RM 6.3 (T1N, R11E, S6 SW1/4 of NW 1/4) in Neal Creek and the obsolete, rotary drum fish screen in the Neal Creek Lateral would be removed. BPA would fund the proposed project.

The proposed project is separated into three phases (Upper, Middle, and Lower). Construction of the Upper Phase is currently scheduled to take place between July, 2003 and March, 2004. The Lower Phase would be completed between May, 2004 and September, 2004; while the Middle Phase would be completed between October, 2004 and March, 2005.

1.2.1 Central Lateral Canal Upgrade (Upper Phase and Middle Phase)

For this portion of the project, 18,000 linear feet of HDPE pipe would be installed. Approximately 16,000 linear feet of pipe would be buried in the existing Central Lateral Canal. The upper end of the pipeline would be 72 inches in diameter, gradually tapering to 60 inches and then 48 inches. Approximately 2,000 linear feet of the 72-inch diameter section would be outside the existing canal and would be trenched within the Highway 35 right-of-way. The construction corridor would be approximately 25 feet wide. No part of this portion of the canal or pipeline crosses any wetlands or stream corridors. After installation of the pipeline, the area would be restored by grading and by replanting with native vegetation.

1.2.2 Installation of Pipeline to Connect the End of Existing Central Lateral Canal With the Lower Phase (Crossing of Neal Creek) and the Existing Neal Creek Lateral Canal

From the lower end of the pipeline that would be buried in the existing Central Lateral Canal, a new trench would be dug to bury approximately 7,000 linear feet of 24-inch diameter HDPE pipe. This section of the pipeline would cross Neal Creek. The trench would be approximately 4 to 6 feet deep, 6 feet wide, and would cross orchard land and an existing clear-cut area before crossing Neal Creek. After crossing Neal Creek, the pipeline would continue on to connect with the existing Neal Creek Lateral Canal. As with the Upper and Middle phases, the area disturbed by installation of the pipeline in this phase would be restored by grading and replanting with native vegetation.

Surge flows from the Neal Creek Lateral Canal currently range between 0 and 2 cfs during the adjustment periods at the Main Canal headgate. These surge flows are spilled to Whiskey Creek, a Hood River tributary, which enters approximately 1.5 miles downstream from Neal Creek. These flows would not change as a result of the proposed project.

1.2.3 Pipeline Crossing of Neal Creek

Neal Creek is the only waterway that would be crossed by the upgraded pipeline system. The pipeline crossing of Neal Creek would be constructed as follows:

- A corridor approximately 25 feet wide would be cleared of vegetation and a trench (4 to 6 feet deep, and approximately 6 feet wide) dug from Neal Creek Road to the streambank of Neal Creek (approximately 100 feet), and continue across Neal Creek.

- All in-water work would be completed during the Oregon Department of Fish and Wildlife (ODFW)-preferred in-water work period for Neal Creek between July 15 and August 31.

- An inflatable rubber bladder would be laid across Neal Creek from the south bank to within approximately five feet of the north bank. The purpose of the bladder would be to temporarily divert water to the north side of the stream so that two 24-inch diameter, 40-foot-long culverts and a coffer dam can be installed in the center of the stream. The culverts would be installed at streambed level.

- After installation of the culverts, a coffer dam of crushed rock (3/4 to 1 inch rock) would be installed just downstream of the bladder and on the north side of the culverts. The coffer dam would extend across the stream. Installation of the coffer dam and culverts would allow access across Neal Creek during pipeline installation.

- The rubber bladder would be removed after the south portion of the coffer dam is sufficiently installed to allow flows (expected to be less than 5 cfs at the site) that were diverted to the north side to be conveyed through the culverts.

- The coffer dam would then be extended the remaining distance across the stream.

- Installation of the temporary culverts and coffer dams are expected to be completed in one day.

- Near the downstream end of the culverts, either silt fencing and/or sand bags would be installed to prevent or minimize turbidity downstream. The absence of pools and low stream gradient at the site, and low stream flow during construction are expected to minimize sediment transport downstream. If flows are present below the site, the in-water work area would be isolated using a crushed rock coffer dam, rubber bladder, silt curtains, and/or sand bags.

- Fish salvage would occur by pumping water from the isolated area to lower the water level and allow dip netting of any fish which may be present. The pump, if needed, would have a NOAA Fisheries-approved fish screen. A fish salvage permit would be obtained from ODFW.

- After fish have been salvaged from the isolated work area, any remaining water would be pumped from the area, and the trench dug. In the event that a settling basin is needed during pumping, a temporary basin (approximately 10 by 15 feet) would be constructed of sand bags and a heavy lining in the high flow channel near the site. Water would be pumped into the temporary settling basin, and any suspended materials allowed to settle out before the water returned to the stream.

- The trench for the pipeline would be constructed from the south side of the stream to the north. As the culverts are approached during trenching, the trench would be excavated under the culverts so that they would not have to be removed. The trench would be backfilled with native materials and the streambed restored to natural composition and configuration. Excess streambed gravel, if any, would be spread in the high flow channel adjacent to the pipeline crossing.

- After installation of the pipeline, an opening through either the north or south side of the coffer dam would be made to allow water to pass through. The inflatable bladder would then be re-installed before removal of the culverts and the remainder of the coffer dam to avoid or minimize turbidity downstream

- Approximately 12 to 15 alder trees (ranging from 4 to 18 inches dbh) would be removed along the south bank within the pipeline corridor. The pipeline corridor on the north bank is vegetated with 1 to 3-inch diameter alder saplings. Up to 20 of these saplings would be removed to allow installation of the pipeline.

1.2.4 Removal of Existing Neal Creek Diversion

The existing concrete and wood diversion structure near RM 6.3 (T1N, R11E, S6 SW1/4 of NW 1/4) in Neal Creek and the obsolete, rotary drum fish screen in the Neal Creek Lateral would be removed. Removal of the diversion structure would be accomplished using a backhoe operating from the streambank. The removed material would be taken to an approved landfill for disposal. Because the structure will be removed by operating the backhoe from the streambank and because installation of materials to isolate the work area would create more disturbance to the stream than the removal of the structure, the work area will not be isolated. Removal of the structure is expected to take less than eight hours to complete. Approximately 50 feet of the upper end of the existing Neal Creek Lateral Canal would be backfilled with native soils and revegetated with native vegetation (willow or alder) from the vicinity of the obsolete rotary drum fish screen to the existing concrete diversion structures on the north bank. The streambank would be stabilized by placement of native soils and riprap (approximately 11 cubic yards along 25 feet of streambank) and revegetated with native willow and alder.

Since the upper end of the existing Neal Creek Lateral Canal would be abandoned once the diversion structure in Neal Creek is removed, a 4-inch diameter pipeline would be buried in that existing canal to convey water to those properties that now receive water from the Neal Creek

Lateral Canal. This pipeline would be approximately 5,000 feet long and would be completely within the existing Neal Creek Lateral Canal.

1.2.5 Installation of Spill Overflow Structure at the Beginning of the Highline Canal

Water flows diverted into the Main Canal from the East Fork Hood River are determined by the anticipated or actual use of water by EFID irrigators. Flows into the Main Canal are regulated by adjusting the headgate on the East Fork Hood River. When irrigation demands decrease, excess water may continue to be diverted for four to five hours until the headgate can be adjusted. As this excess flow occurs for those few hours, flows in the Central Lateral Canal pipeline will decrease as the capacity of the pipeline is reached.

Therefore, a spill overflow structure is needed for surge flows that may occur to the pipeline in excess of the pipeline capacity. This structure would be installed alongside the existing irrigation canal near the beginning of the Highline Lateral Canal at the Caldwell Flow Structure. No wetlands or stream crossings are in this vicinity.

1.2.6 Diversion of Surge Flows to Odell Creek From the Highline Canal Spill Overflow Structure

Canal surge flows would be managed by continuous diversion of surge flows to the Highline Canal. Presently, surge flows are diverted to Neal Creek, but this would be terminated by the proposed project as described above. On completion of the project, surge flows would pass down the existing Highline Lateral and into Odell Creek, a tributary to Hood River. Up to 5 cfs of water are anticipated to enter Odell Creek periodically during the irrigation season. No new structures are needed for this portion of the project.

1.2.7 Minimization/Avoidance and Conservation Measures

Conservation measures which would be followed during implementation of the project to minimize impacts to listed fish and their habitat in Neal Creek are described in detail on pages 25-29 of the BA and summarized as follows:

- Construction would occur during the ODFW-preferred in-water work period between July 15 and August 31.
- Fish salvage would occur before dewatering the isolation areas behind the coffer dams and would comply with procedures in NOAA Fisheries' June 14, 2002 SLOPES (refer to: 2002/00976) biological opinion.

- All areas disturbed by construction activities associated with this project would be planted with native vegetation, and would be seeded after September 30 to insure quality germination and appropriate season moisture for greatest success.

- Streamflow and fish passage would be maintained at the site during construction by installation of temporary culverts.

- A pollution and erosion control plan would be developed and implemented as described in sections 10.1.5 and 10.1.6 of the BA

2. ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Biological Information

The listing status and biological information for LCR steelhead are described in Busby *et al.* (1996) and NMFS (1997). The listing status and biological information for LCR chinook salmon are described in Myers *et al.* (1998).

Neal Creek provides spawning, rearing, and migratory habitat for both adult and juvenile life stages of LCR steelhead. According to the BA (citing Steve Pribyl, ODFW Fishery Biologist), steelhead which use Neal Creek are winter-run. Winter steelhead spawn mainly in March and April, and would not be present, nor would eggs or alevins be present in the gravels in Neal Creek during the in-water work period between July 15 and August 31. However, juvenile LCR steelhead rear in Neal Creek year-round, and may be present in the project area even during the in-water work period.

As stated above, wild chinook salmon in the Hood River basin are considered extinct. Hatchery spring chinook salmon spawn, rear, and migrate in Hood River and some of its tributaries, but these hatchery fish are not considered part of the LCR chinook salmon ESU. Hatchery chinook salmon from several Columbia River hatcheries are known to "stray" into Hood River. Wild LCR chinook salmon destined for other Columbia River tributaries may do the same. According to the BA (citing Steve Pribyl, ODFW Fishery Biologist), Neal Creek likely does not contain habitat suitable for spring chinook salmon. Therefore, no juvenile LCR chinook salmon are expected at the project site, but may be present downstream.

Essential features of the adult spawning, juvenile rearing, and adult and juvenile migratory habitats for the species are substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions (50 CFR 226.212). The essential features that the proposed project may affect are safe passage conditions, substrate, water quality, and riparian vegetation resulting from project activities.

2.1.2 Evaluating Proposed Action

The standards for determining jeopardy and destruction or adverse modification of critical habitat are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). In conducting analyses of habitat-altering actions under section 7 of the ESA, NOAA Fisheries uses the following steps of the consultation regulations combined with the Habitat Approach (NMFS 1999): (1) Consider the status and biological requirements of the species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species and whether the action is consistent with the available recovery strategy; (4) consider cumulative effects; and (5) determine whether the proposed action, in light of the above factors is likely to appreciably reduce the likelihood of species survival in the wild or destroy or adversely modify critical habitat. In completing this step of the analysis, NOAA Fisheries determines whether the action under consultation, together with cumulative effects when added to the environmental baseline, is likely to jeopardize the ESA-listed species or result in the destruction or adverse modification of critical habitat. If either or both are found, NOAA Fisheries will identify reasonable and prudent alternatives for the action that avoid jeopardy or destruction or adverse modification of critical habitat.

2.1.3 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmonids is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with information considered in its decision to list LCR steelhead and LCR chinook salmon for ESA protection and also considers new data available that are relevant to the determination.

The relevant biological requirements are those necessary for LCR steelhead and LCR chinook salmon to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration, spawning and rearing. LCR steelhead and LCR chinook salmon survival in the wild depends upon the proper functioning of certain ecosystem processes, including habitat formation and maintenance. Restoring functional habitats depends largely on allowing natural processes to increase their ecological function, while removing adverse impacts of current practices. In conducting analyses of habitat-altering actions, NOAA Fisheries defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and applies a "habitat approach" to its analysis (NMFS

1999). The current status of the LCR steelhead and LCR chinook salmon, based upon their risk of extinction, has not significantly improved since the species were listed.

2.1.4 Environmental Baseline

In step 2 of NOAA Fisheries' analysis, we evaluate the relevance of the environmental baseline in the action area to the species' current status. The environmental baseline is an analysis of the effects of past and ongoing human-caused and natural factors leading to the current status of the species or its habitat and ecosystem within the action area. The action area includes, "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action" (50 CFR 402.02). The action area for this consultation, therefore, includes the existing Central Lateral Canal, the proposed new pipeline corridor from the lower end of the existing Cental Lateral Canal to the point where the new pipeline would connect with the Neal Creek Lateral Canal, the streambed and streambanks of the West Fork of Neal Creek and Neal Creek from the point where the Eastside Lateral Canal enters the West Fork of Neal Creek downstream to approximately 300 feet downstream from the proposed pipeline crossing of Neal Creek, and the streambed and streambanks of Odell Creek from the point where the surge flow spill water from the existing Highline Canal is introduced downstream to the mouth of Odell Creek.

The current population status and trends for LCR steelhead are described in Busby *et al.* (1996) and in NMFS (1997); and for LCR chinook salmon in Myers *et al.* (1998). In general, the current status of LCR steelhead and LCR chinook salmon populations is the result of several long-term, human-induced factors (*e.g*, habitat degradation, water diversions, hydropower dams) that serve to exacerbate the adverse effects of natural environmental variability from such factors as drought, floods, and poor ocean conditions.

Environmental baseline conditions within the action area were evaluated for the subject action at the project level and watershed scales. This evaluation was based on the "matrix of pathways and indicators (MPI) described in "Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale" (NMFS 1996). This method assesses the current condition of instream, riparian, and watershed factors that collectively provide properly functioning aquatic habitat essential for the survival and recovery of the species.

In the Neal Creek watershed, aquatic habitat has been affected by agricultural use, timber harvest, urbanization, irrigation diversions, and interbasin transfer of glacial, silt-laden water from the East Fork Hood River. None of the habitat indicators in the MPI were rated as properly functioning. Fifteen of the indicators were rated as functioning "at risk", and three indicators (temperature, large woody debris, and width/depth ratio) were rated as "not properly functioning".

2.1.5 Effects of Proposed Action

In step 3 of the jeopardy analysis, NOAA Fisheries evaluates the effects of the proposed action on listed fish and their habitat.

Juvenile LCR steelhead may be present in the project area of Neal Creek even during ODFW's preferred in-water work period between July 15 and August 31. If juvenile LCR steelhead are present, they may be affected by the proposed project due to: (1) Potential stranding of juvenile fish when in-water work areas are isolated before construction; and (2) potential increased turbidity in Neal Creek in the project area and downstream as a result of construction activities.

If any juvenile LCR steelhead are present in the project area of Neal Creek during construction, they may be killed or displaced by construction activities. Isolation of in-water work areas in the vicinity of the pipeline crossing of Neal Creek could cause stranding of fish in areas to be isolated. Juvenile LCR steelhead could also be killed or injured by contact with material used to isolate work areas as it is being installed, or from handling necessary to capture and release fish from the isolated areas. However, because of the timing of the work, it is expected that few, if any, juvenile LCR steelhead will be present in Neal Creek in the project. The proposed Central Lateral Canal Upgrade Project could require potential direct handling of listed salmonids during fish removal. The BA estimates the potential to capture and release up to 25 LCR steelhead juveniles during the proposed work area isolation and fish salvage efforts. Assuming a 5% direct or delayed mortality rate from capture and relocation stress, fish salvage and removal could result in lethal take of up to two LCR steelhead juveniles. LCR chinook salmon are not expected to be present at the project site. Therefore, LCR chinook salmon would not be affected by isolation of in-water work areas.

Excavation and fill activities at the proposed pipeline crossing (RM 5.5) and removal of the existing concrete diversion structure (RM 6.3) will disturb sediment which has the potential to increase turbidity in Neal Creek at the project site and downstream. The turbidity increases are expected to be of short duration. These short-term increases in turbidity could result in temporarily reduced feeding efficiency for juvenile LCR steelhead in the project area and for a short distance downstream. Because instream work areas will be isolated from flowing water during construction work at the pipeline crossing, and because the existing diversion structure will be removed by a backhoe operating from the streambank, sediment transport and resultant increases in stream turbidity are expected to be minimized.

Odell Creek is not accessible to LCR steelhead or LCR chinook salmon because of an impassable natural waterfall near its mouth. Therefore, the transfer of surge flows (up to 5 cfs during the irrigation season) to Odell Creek via the existing Highline Canal is not expected to affect listed fish or their habitat. Since surge flows (up to 2 cfs) to Whiskey Creek from the Neal Creek Lateral Canal would not change as a result of the proposed project, there would be no additional effect to aquatic habitat in Whiskey Creek.

Potential beneficial effects resulting from the proposed restoration project include:

(1) Elimination of the transfer of turbid, glacial, silt-laden water from the East Fork Hood River to the West Fork of Neal Creek and Neal Creek is expected to improve water quality in those streams; (2) improved fish passage in Neal Creek as a result of removal of the existing concrete diversion structure near RM 6.3; and, (3) installation of a pipeline in the existing open Central Lateral Canal and combining the Central and Eastside Canals would improve efficiency of water transport, and would be eliminating losses due to ground seepage and evaporation.

2.1.6 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation." This is step 4 in NOAA Fisheries' analysis process. The project area is on private land. NOAA Fisheries is not aware of any specific future non-federal activities within the proposed action area that would cause greater impacts to listed species than presently occurs. NOAA Fisheries assumes that future private and state actions will continue at similar intensities as in recent years.

2.1.7 Conclusion

The final step in NOAA Fisheries' approach to determine jeopardy is to determine whether the proposed action is likely to appreciably reduce the likelihood of species survival or recovery in the wild. NOAA Fisheries has determined that, when the effects of the proposed Central Lateral Canal Upgrade Project addressed in this Opinion are added to the environmental baseline and cumulative effects occurring in the action area, it is not likely to jeopardize the continued existence of LCR steelhead or LCR chinook salmon. NOAA Fisheries believes that the proposed actions would cause a minor, short-term increase in stream turbidity in Neal Creek.

These conclusions are based on the following considerations: (1) All in-water work will be completed within the ODFW-preferred in-water work period between July 15 and August 31; (2) very few, if any, juvenile LCR steelhead and no LCR chinook salmon are expected to be present in the pipeline crossing area of Neal Creek during the in-water work period; (3) downstream movement of sediment into Neal Creek from construction activities is expected to be minimal because areas where excavation or fill activities occur in the vicinity of the pipeline crossing of Neal Creek will be isolated from flowing water and standard sediment control measures will be implemented; (4) streambank areas disturbed by project activities will be mulched and planted with native grasses, shrubs, and trees; (5) there will be no changes in the amount or frequency of water withdrawals from the East Fork of Hood River and no net loss of flow in the Neal Creek drainage; (6) elimination of the transfer of turbid, glacial, silt-laden water from the East Fork Hood River to the West Fork of Neal Creek and Neal Creek is expected to improve water quality in those streams; (7) fish passage in Neal Creek will be improved as a result of removal of the existing concrete diversion structure near RM 6.3; and (8) installation of a pipeline in the existing open Central Lateral Canal and combining the Central and Eastside Canals would improve efficiency of water conveyance and distribution by eliminating losses due to ground seepage and evaporation. Thus, the proposed action is not likely to impair properly

functioning habitat, or retard the long-term progress of impaired habitat toward proper functioning condition essential to the long-term survival and recovery at the population or ESU scale.

2.1.8 Conservation Recommendations

Section 7 (a)(1) of the ESA directs federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of proposed actions on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information. NOAA Fisheries has no additional conservation recommendations regarding the action addressed in this Opinion.

2.1.9 Reinitiation of Consultation

Reinitiation of consultation is required if: (1) The action is modified in a way that causes an effect on the listed species that was not previously considered in the BA and this Opinion; (2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or (3) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR. 402.16).

2.2 Incidental Take Statement

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. "Harass" is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. "Incidental take" is take of listed animal species that results from, but is not the purpose of, the federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply to implement the reasonable and prudent measures.

2.2.1 Amount or Extent of the Take

NOAA Fisheries anticipates that the proposed actions are reasonably certain to result in incidental take of species listed in this Opinion because of detrimental effects from increased sediment levels (non-lethal), increased pollutant levels (potentially lethal), limited riparian habitat disturbance (non-lethal), and the potential for direct take during isolation of in-water work areas (non-lethal and lethal). Based on the expected low numbers of juvenile LCR steelhead in Neal Creek at the pipeline crossing site at the time the in-water work is conducted, the potential for take is low. Handling of juvenile steelhead during the work area isolation process and transfer of fish back to Neal Creek may result in incidental take of individuals. Information provided in the BA estimated that up to 25 juvenile LCR steelhead could be salvaged. Assuming direct or delayed mortality of 5% of those salvaged fish would result in the lethal take of 2 juvenile LCR steelhead. No LCR chinook salmon are expected in the vicinity of the proposed pipeline crossing in Neal Creek.

Effects of actions such as minor sedimentation and minor riparian disturbance are unquantifiable in the short term and are not expected to be measurable as long-term harm to habitat features or by long-term harm to salmonid behavior or population levels. Therefore, even though NOAA Fisheries expects some low-level incidental take to occur due to the proposed actions covered by this Opinion, best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate the specific amount of incidental take to the species itself. In instances such as these, NOAA Fisheries designates the expected level of take as "unquantifiable". Based on the information in the BA, NOAA Fisheries anticipates that an unquantifiable amount of incidental take could occur as a result of the habitat altering actions covered by the Opinion. The extent of the take includes the aquatic and associated riparian habitats affected by the project.

2.2.2 Effect of Take

In this Opinion, NOAA Fisheries determines that this level of anticipated take is not likely to result in jeopardy to LCR steelhead or LCR chinook salmon.

2.2.3 Reasonable and Prudent Measures

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. Minimizing the amount and extent of take is essential to avoid jeopardy to the listed species. The BPA shall:

1. Minimize the likelihood of incidental take from construction activities by directing the contractor to avoid or minimize disturbance to riparian and aquatic systems.

2. Ensure success of site restoration and revegetation by applying permit conditions to new plantings.

3. Complete a comprehensive monitoring and reporting program to ensure this Opinion is meeting its objectives of minimizing the likelihood of take from permitted activities.

2.2.4 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, The BPA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement reasonable and prudent measure #1 (construction activities), the BPA shall ensure that:

    a. Timing of in-water work. Work within the active channel will be completed between July 15 and August 31, unless otherwise approved in writing by NOAA Fisheries.
    b. Cessation of work. Project operations will cease under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.
    c. Fish screens. All water intakes used for a project, including pumps used to isolate an in-water work area, will have a fish screen installed, operated and maintained according to NOAA Fisheries' fish screen criteria.[1]
    d. Pollution and Erosion Control Plan. A pollution and erosion control plan (PECP) will be prepared and carried out to prevent pollution related to construction operations. The plan must be available for inspection on request by COE or NOAA Fisheries.
        i. Plan Contents. The PCEP must contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.
            (1) Practices to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations and staging areas.
            (2) Practices to confine, remove and dispose of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities.
            (3) A description of any hazardous products or materials that will be used for the project, including procedures for inventory, storage, handling, and monitoring.
            (4) A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products,

[1] National Marine Fisheries Service, *Juvenile Fish Screen Criteria* (revised February 16, 1995) and *Addendum: Juvenile Fish Screen Criteria for Pump Intakes* (May 9, 1996) (guidelines and criteria for migrant fish passage facilities, and new pump intakes and existing inadequate pump intake screens) (http://www.nwr.noaa.gov/1hydrop/hydroweb/ferc.htm).

quick response containment and clean up measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.

(5) Practices to prevent construction debris from dropping into any stream or waterbody, and to remove any material that does drop with a minimum disturbance to the streambed and water quality.

ii. Inspection of erosion controls. During construction, all erosion controls must be inspected daily during the rainy season and weekly during the dry season to ensure they are working adequately.[2]

(1) If inspection shows that the erosion controls are ineffective, work crews must be mobilized immediately to make repairs, install replacements, or install additional controls as necessary.

(2) Sediment must be removed from erosion controls once it has reached 1/3 of the exposed height of the control.

e. Construction discharge water. All discharge water created by construction (*e.g.*, concrete washout, pumping for work area isolation, vehicle wash water) will be treated as follows.

i. Water quality. Facilities must be designed, built and maintained to collect and treat all construction discharge water using the best available technology applicable to site conditions. The treatment must remove debris, nutrients, sediment, petroleum hydrocarbons, metals and other pollutants likely to be present.

ii. Discharge velocity. If construction discharge water is released using an outfall or diffuser port, velocities must not exceed 4 feet per second.

f. Preconstruction activity. Before significant[3] alteration of the project area, the following actions must be completed:

i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.

ii. Emergency erosion controls. Ensure that the following materials for emergency erosion control are onsite.

(1) A supply of sediment control materials (*e.g.*, silt fence, straw bales[4]).

(2) An oil-absorbing floating boom whenever surface water is present.

iii. Temporary erosion controls. All temporary erosion controls must be in place and appropriately installed downslope of project activity within the riparian area until site restoration is complete.

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[2] "Working adequately" means no turbidity plumes are evident during any part of the year.

[3] "Significant" means an effect can be meaningfully measured, detected or evaluated.

[4] When available, certified weed-free straw or hay bales must be used to prevent introduction of noxious weeds.

g. Temporary access roads.

i. Existing ways. Existing roadways or travel paths must be used whenever possible, unless construction of a new way would result in less habitat take.

ii. Steep slopes. Temporary roads built mid-slope or on slopes steeper than 30% are not authorized.

iii. Minimizing soil disturbance and compaction. When a new temporary road is necessary within 150 feet[5] of a stream, waterbody or wetland, soil disturbance and compaction must be minimized by clearing vegetation to ground level and placing clean gravel over geotextile fabric, unless otherwise approved in writing by NOAA Fisheries.

iv. Temporary stream crossings.

(1) The number of temporary stream crossings must be minimized.

(2) Temporary road crossings must be designed as follows:

(a) A survey must identify and map any potential spawning habitat within 300 feet downstream of a proposed crossing.

(b) No stream crossing may occur at known or suspected spawning areas, or within 300 feet upstream of such areas if spawning areas may be affected.

(c) The crossing design must provide for foreseeable risks (*e.g.*, flooding and associated bedload and debris) to prevent the diversion of streamflow out of the channel and down the road if the crossing fails.

(d) Vehicles and machinery must cross riparian areas and streams at right angles to the main channel wherever possible.

v. Obliteration. When the project is completed, all temporary access roads must be obliterated, the soil must be stabilized, and the site must be revegetated. Temporary roads in wet or flooded areas must be abandoned and restored as necessary by the end of the in-water work period.

h. Heavy Equipment. Use of heavy equipment will be restricted as follows:

i. Choice of equipment. When heavy equipment must be used, the equipment selected must have the least adverse effects on the environment (*e.g.*, minimally-sized, rubber-tired).

ii. Vehicle staging. Vehicles must be fueled, operated, maintained and stored as follows:

(1) Vehicle staging, cleaning, maintenance, refueling, and fuel storage must take place in a vehicle staging area placed 150 feet or more from any stream, waterbody, or wetland.

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[5] Distances from a stream or waterbody are measured horizontally from, and perpendicular to, the bankfull elevation, the edge of the channel migration zone, or the edge of any associated wetland, whichever is greater. "Channel migration zone" means the area defined by the lateral extent of likely movement along a stream reach as shown by evidence of active stream channel movement over the past 100 years, e.g., alluvial fans or floodplains formed where the channel gradient decreases, the valley abruptly widens, or at the confluence of larger streams.

(2) All vehicles operated within 150 feet of any stream, waterbody, or wetland must be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected must be repaired in the vehicle staging area before the vehicle resumes operation. Inspections must be documented in a record that is available for review on request by COE or NOAA Fisheries.

(3) All equipment operated instream must be cleaned before beginning operations below the bankfull elevation to remove all external oil, grease, dirt, and mud.

iii. Stationary power equipment. Stationary power equipment (*e.g.*, generators, cranes) operated within 150 feet of any stream, waterbody, or wetland must be diapered to prevent leaks, unless otherwise approved in writing by NOAA Fisheries.

i. Site preparation. Native materials will be conserved for site restoration.

i. If possible, native materials must be left where they are found.

ii. Materials that are moved, damaged or destroyed must be replaced with a functional equivalent during site restoration.

iii. Any large wood[6], native vegetation, weed-free topsoil, and native channel material displaced by construction must be stockpiled for use during site restoration.

j. Isolation of in-water work area. If adult or juvenile fish are reasonably certain to be present, the work area will be well isolated from the active flowing stream using inflatable bags, sandbags, sheet pilings, or similar materials. The work area will also be isolated if in-water work may occur within 300 feet upstream of spawning habitats.

k. Capture and release. Before and intermittently during pumping to isolate an in-water work area, an attempt must be made to capture and release fish from the isolated area using trapping, seining, electrofishing, or other methods as are prudent to minimize risk of injury.

i. A fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish must conduct or supervise the entire capture and release operation.

ii. If electrofishing equipment is used to capture fish, the capture team must comply with NOAA Fisheries' electrofishing guidelines.[7]

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[6] For purposes of this Opinion only, "large wood" means a tree, log, or rootwad big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and otherwise support aquatic habitat function, given the slope and bankfull width of the stream in which the wood occurs. See, Oregon Department of Forestry and Oregon Department of Fish and Wildlife, *A Guide to Placing Large Wood in Streams*, May 1995 (www.odf.state.or.us/FP/RefLibrary/LargeWoodPlacemntGuide5-95.doc).

[7] National Marine Fisheries Service, *Backpack Electrofishing Guidelines* (December 1998) (http://www.nwr.noaa.gov/1salmon/salmesa/pubs/electrog.pdf).

iii. The capture team must handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during seining and transfer procedures to prevent the added stress of out-of-water handling.

iv. Captured fish must be released as near as possible to capture sites.

v. ESA-listed fish may not be transferred to anyone except NOAA Fisheries personnel, unless otherwise approved in writing by NOAA Fisheries.

vi. Other federal, state, and local permits necessary to conduct the capture and release activity must be obtained.

vii. NOAA Fisheries or its designated representative must be allowed to accompany the capture team during the capture and release activity, and must be allowed to inspect the team's capture and release records and facilities.

l. Earthwork. Earthwork (including drilling, excavation, dredging, filling and compacting) will be completed as quickly as possible.

i. Site stabilization. All disturbed areas must be stabilized, including obliteration of temporary roads, within 12 hours of any break in work unless construction will resume work within 7 days between June 1 and September 30, or within 2 days between October 1 and May 31.

ii. Source of materials. Boulders, rock, woody materials and other natural construction materials used for the project must be obtained outside the riparian area.

2. To implement reasonable and prudent measure #2 (site restoration and revegetation), the BPA shall ensure that:

a. Planting. Revegetation at the project sites is completed in the following manner:

i. All exposed soil surfaces, including construction access roads and associated staging areas, will be stabilized at finished grade with mulch, native herbaceous seeding, and native woody vegetation.

ii. Disturbed areas will be planted with native vegetation specific to the project vicinity or the region of the state where the project is located, and will comprise a diverse assemblage of woody and herbaceous species.

iii. Plantings will be arranged randomly within the revegetation area. Approximate placement of trees will specified before construction begins.

(1) If revegetation success has not been achieved after 3 years, the applicant will submit an alternative plan to the BPA. The alternative plan will address temporal loss of function.

(2) Plant establishment monitoring will continue and plans will be submitted by the applicant to the BPA until site restoration success has been achieved.

iv. No herbicide application will occur within 300 feet of any stream channel as part of this permitted action, unless approved in advance by a NOAA Fisheries biologist. Mechanical removal of undesired vegetation and root nodes is permitted.

v. No surface application of fertilizer will be used within 50 feet of any stream channel as part of this permitted action.

3. To implement reasonable and prudent measure #3 (monitoring and reporting), the BPA shall ensure that:

a. Within 30 days of completing the project, the BPA shall submit a monitoring report to NOAA Fisheries describing the BPA's success in meeting these terms and conditions. This report will consist of the following information.

I. Project identification.

(1) Project name.

(2) Starting and ending dates of work completed for this project.

(3) Name and address of the construction supervisor.

ii. Photographic documentation of environmental conditions at the project site before, during and after project completion.

(1) Photographs will include general project location views and closeups showing details of the project area and project, including pre- and post-construction.

(2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.

(3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

b. If a dead, injured, or sick endangered or threatened species specimen is found, initial notification must be made to the National Marine Fisheries Service Law Enforcement Office, Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; telephone: 360.418.4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

c. Monitoring reports will be submitted to:

National Marine Fisheries Service
Oregon Habitat Branch
Attn: 2003/00644
525 NE Oregon Street
Portland, OR 97232

3. MAGNUSON-STEVENS ACT

3.1 Magnuson-Stevens Fishery Conservation and Management Act

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in federal fishery management plans. In addition, the MSA requires federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of EFH: "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NOAA Fisheries shall provide conservation recommendations for any federal or state activity that may adversely affect EFH;

- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the federal agency shall explain its reason for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.2 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O.gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other waterbodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.3 Proposed Action

The proposed action is detailed above in section 1.2 of this document. The action area includes the Neal Creek, in the Hood River basin. This area has been designated as EFH for various life stages of chinook salmon and coho salmon.

3.4 Effects of Proposed Action

As described in detail in the ESA portion of this consultation, the proposed activities would result in detrimental, short-term, adverse effects to a variety of habitat parameters.

3.5 Conclusion

NOAA Fisheries believes that the proposed action will adversely affect the EFH for chinook salmon and coho salmon.

3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations for any federal or state agency action that would adversely affect EFH. In addition to conservation measures proposed for the project by the BPA, all of the reasonable and prudent measures and the terms and conditions contained in sections 2.2.3 and 2.2.4, respectively, of the ESA portion of this Opinion are applicable to salmon EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH conservation recommendations.

3.7 Statutory Response Requirement

The MSA (section 305(b)) and 50 CFR 600.920(j) requires the BPA to provide a written response to NOAA Fisheries' EFH conservation recommendations within 30 days of its receipt of this letter. The response must include a description of measures proposed to avoid, mitigate,

or offset the adverse impacts of the activity on EFH. If the response is inconsistent with NOAA Fisheries' conservation recommendations, the BPA shall explain its reasons for not following the recommendations.

3.8 Supplemental Consultation

The BPA must reinitiate EFH consultation with NOAA Fisheries if either the action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion in addition to the BA and additional information requested by NOAA Fisheries and provided by the BPA and their consultant.

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